

# ARTIFICIAL INTELLIGENCE (CYAI)

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## CYAI 1470

### Artificial Intelligence History, Theory, and Platforms

CRT HRS:4 LEC HRS:3 LAB HRS:3 OTH HRS:0  
This course is an overview of the history, theory and platforms that serve as the foundation for our current understanding of today's artificial intelligence. This course provides the necessary insight needed to learn about the largest field of study that is rapidly expanding into every other field. The course covers everything from post-World War II A.I. to the ever-changing, moment-by-moment developments of today.

*Prerequisite: None.*

## CYAI 1471

### Introduction to Machine Learning

CRT HRS:4 LEC HRS:3 LAB HRS:3 OTH HRS:0  
This course will give students the fundamental ideas and intuition behind modern machine learning methods as well as a more formal understanding of how, why, and when to apply them. The underlying theme in the course is a statistical inference, as it provides the foundation for most of the methods covered.

*Prerequisite: None.*

## CYAI 1472

### Artificial Intelligence in Cybersecurity

CRT HRS:4 LEC HRS:3 LAB HRS:3 OTH HRS:0  
This course integrates the use of artificial intelligence in cybersecurity. Students will use artificial intelligence and Machine Learning to practice real-time intrusion and threat detection examples. The course introduces techniques for using artificial intelligence with cybersecurity systems to gain precise performance. A Primary use of artificial intelligence in cybersecurity is to anticipate and protect network infrastructures.

*Prerequisite: None.*

## CYAI 2170

### Practicum - Artificial Intelligence

CRT HRS:1 LEC HRS:0 LAB HRS:0 OTH HRS:10  
This course provides practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student.

*Prerequisite: CYAI 2476 and CYAI 2477.*

## CYAI 2472

### Artificial Intelligence Applications & Case History

CRT HRS:4 LEC HRS:3 LAB HRS:3 OTH HRS:0  
This course provides the implications of intelligent technologies, artificial intelligence, and their impact on business and society. Students will examine specific applications of artificial intelligence in business and the case histories of those implementations. This course will cover applications that range from healthcare, autonomous transportation, manufacturing, Regional Emergency Response and Supply Chain/Logistics. The goal of this course is to have students learn how to apply artificial intelligence in almost any type of environment where people need to peacefully coexist with technology.

*Prerequisite: CYAI 1470, CYAI 1471, and CYAI 1472.*

## CYAI 2473

### Natural Language Processing

CRT HRS:4 LEC HRS:3 LAB HRS:3 OTH HRS:0  
This course delves into Natural Language Processing (NLP), which falls under the fields of computer science, linguistics, and artificial intelligence (AI). NLP focuses on the interaction between computers and human language. The course emphasizes the pivotal role NLP plays in AI, which has become indispensable in global transitions. Given the centrality of language in human understanding, Large Language Models (LLMs) are rapidly propelling these transitions forward. Students will gain practical skills in harnessing these cutting-edge LLMs.

*Prerequisite: CYAI 2476 and CYAI 2477.*

## CYAI 2474

### Robot Operating System & Platforms in AI

CRT HRS:4 LEC HRS:3 LAB HRS:3 OTH HRS:0  
This course focuses on the application, techniques, and management of various A.I. systems within the framework of Robotic Operating Systems (ROS). Students will gain insights into deploying artificial Intelligence Platforms on both small-scale, and commercial-grade robots. ROS, a widely recognized operating system, is utilized for streamlining sensor configuration in robots, enabling seamless documentation and troubleshooting of A.I. systems.

*Prerequisite: CYAI 1470, CYAI 1471, and CYAI 1472.*

## CYAI 2476

### Deep Learning in Artificial Intelligence

CRT HRS:4 LEC HRS:3 LAB HRS:3 OTH HRS:0  
This course focuses on various deep learning techniques, particularly in the realms of control systems, autonomous diving, and advanced applications like Large Language Models. Students will gain proficiency in utilizing a range of neural network architectures to accelerate deep learning deployment on compact platforms. Deep Learning plays a pivotal role in the emerging landscape of Generative Artificial Intelligence across diverse sectors. Thus, this course equips learners with the skills to effectively apply deep learning models across different industries.

*Prerequisite: CYAI 2472 and CYAI 2474.*

## CYAI 2477

### Data Science in Artificial Intelligence

CRT HRS:4 LEC HRS:3 LAB HRS:3 OTH HRS:0  
This course will delve into the evolution of data processing from the 1950's to the present day, encompassing diverse database models, strategies for data acquisition and refinement, and the transformative impact of Machine Learning. It explores the dynamics of data, including its highly distributed nature and various storage systems. The curriculum imparts a deep understanding of data integrity principles and equips students with the skills to implement effective checkpoints for performance optimization and error resolution within data systems. Furthermore, participants will learn techniques for integrating disparate data formats into modern frameworks and leveraging ordinary data to generate valuable insights.

*Prerequisite: CYAI 2472 and CYAI 2474.*